

CLAIMS

1. A process comprising:
topically applying brominated compounds onto a plurality of polystyrene beads, the brominated compounds comprising a brominated alkane having at least one substituent aromatic group; and
5 forming a molded pattern from the polystyrene beads with the topically applied brominated compounds.
2. A process as set forth in claim 1 wherein one of the substituent aromatic group comprises a phenyl group.
3. A process as set forth in claim 1 wherein the brominated compounds include two substituent aromatic groups.
4. A process as set forth in claim 3 wherein each of the two substituent aromatic groups comprises a phenyl group.
5. A process as set forth in claim 1 wherein the brominated compounds include three substituent aromatic groups.
6. A process as set forth in claim 5 wherein each of the three substituent aromatic groups comprises a phenyl group.
7. A process as set forth in claim 1 wherein each of the brominated compounds comprises at least two bromine substituent.
8. A process as set forth in claim 1 wherein each of the brominated compounds comprises at least four bromine substituents.
9. A process as set forth in claim 1 wherein the brominated compounds are topically applied to the polystyrene beads in an amount ranging from 0.1-5 weight percent.

10. A process as set forth in claim 1 wherein the brominated compounds are topically applied to the polystyrene beads in an amount ranging from 0.1-2 weight percent.

11. A process as set forth in claim 1 wherein the brominated compounds comprise dibromodiphenylethane.

12. A process as set forth in claim 1 wherein the brominated compounds comprise 1,2-dibromo-1,2-diphenylethane.

13. A process as set forth in claim 1 wherein the brominated compounds comprise tetrabromodiphenylbutane.

14. A process as set forth in claim 1 wherein the brominated compounds comprise 1,2,3,4-tetrabromo-1,2-diphenylbutane.

15. A process as set forth in claim 1 wherein the brominated compounds comprise hexabromodiphenylhexane.

16. A process as set forth in claim 1 wherein the brominated compounds comprise 1,2,3,4,5,6-hexabromo-1,2-diphenylhexane.

17. A process set forth in claim 1 further comprising forming a lost foam casting mold from the molded pattern and pouring molten metal onto the molded pattern causing the polystyrene beads to depolymerize.

18. A process as set forth in claim 17 further comprising pre-expanding the polystyrene beads prior to forming the molded pattern.

19. A process as set forth in claim 1 wherein the brominated compounds comprise a finely divided powder.

20. A process as set forth in claim 19 wherein the brominated compounds are topically applied by mechanically mixing the finely divided powder and beads together.

21. A process comprising:

topically applying a finely divided powder onto a plurality of polystyrene beads, the finely divided powder comprising brominated compounds including a brominated alkane having at least one substituent
5 aromatic group;

pre-expanding the polystyrene beads with the topically applied brominated compounds and forming a molded pattern from the pre-expanded polystyrene beads;

forming a lost foam casting mold with the molded pattern; and

10 pouring molten metal into the lost foam casting mold and onto the molded pattern to depolymerize the polystyrene beads with the topically applied brominated compounds.

22. A process as set forth in claim 21 wherein one of the substituent aromatic group comprises a phenyl group.

23. A process as set forth in claim 21 wherein the brominated compounds include two substituent aromatic groups.

24. A process as set forth in claim 23 wherein each of the two substituent aromatic groups comprises a phenyl group.

25. A process as set forth in claim 21 wherein the brominated compounds include three substituent aromatic groups.

26. A process as set forth in claim 25 wherein each of the three substituent aromatic groups comprises a phenyl group.

27. A process as set forth in claim 21 wherein each of the brominated compounds comprises at least two bromine substituent.

28. A process as set forth in claim 21 wherein each of the brominated compounds comprises at least four bromine substituents.

29. A process as set forth in claim 21 wherein the brominated compounds are topically applied to the polystyrene beads in an amount ranging from 0.1-5 weight percent.

30. A process as set forth in claim 21 wherein the brominated compounds are topically applied to the polystyrene beads in an amount ranging from 0.1-2 weight percent.

31. A process as set forth in claim 21 wherein the brominated compounds comprise dibromodiphenylethane.

32. A process as set forth in claim 21 wherein the brominated compounds comprise 1,2-dibromo-1,2-diphenylethane.

33. A process as set forth in claim 21 wherein the brominated compounds comprise tetrabromodiphenylbutane.

34. A process as set forth in claim 21 wherein the brominated compounds comprise 1,2,3,4-tetrabromo-1,2-diphenylbutane.

35. A process as set forth in claim 21 wherein the brominated compounds comprise hexabromodiphenylhexane.

36. A process as set forth in claim 21 wherein the brominated compounds comprise 1,2,3,4,5,6-hexabromo-1,2-diphenylhexane.

37. A process comprising:

topically applying brominated compounds to a plurality of polymer beads, the brominated compounds comprising a carbon chain having at least one bromine substituent, and having at least one aromatic group substituent;
5 and

forming a molded pattern from the polymer beads with the topically applied brominated compounds.

38. A process as set forth in claim 37 and further comprising forming a lost foam casting mold from the molded pattern and pouring molten metal into the molded pattern causing the polymer beads to depolymerize.

39. A process as set forth in claim 38 wherein the molten metal comprises aluminum.

40. A process as set forth in claim 38 wherein at least one of the aromatic groups comprises a phenyl group.

41. A process as set forth in claim 37 wherein the polymer beads comprise polystyrene beads.

42. A process as set forth in claim 37 wherein the brominated compounds are selected from the group consisting of dibromodiphenylethane, tetrabromodiphenylbutane, hexabromodiphenylhexane and mixtures thereof.

44. A process as set forth in claim 37 wherein the brominated compounds comprise dibromodiphenylethane.

45. A process as set forth in claim 37 wherein the brominated compounds comprise tetrabromodiphenylbutane.

46. A process as set forth in claim 37 wherein the brominated compounds comprise hexabromodiphenylhexane.

47. A process as set forth in claim 37 wherein the forming of the molded pattern is accomplished without the use of additional lubricants.

48. A process as set forth in time 37 wherein the forming of the molded pattern is accomplished without a stearate lubricant.

49. A process as set forth in claim 37 wherein the bromocompounds do not have an aromatic group with a substituent bromine on the aromatic group.

50. A process as set forth in claim 37 wherein the bromocompounds comprise a finely divided powder.

51. A process as set forth in claim 50 wherein the bromocompounds are topically applied to the beads by pouring the finely divided powder onto the beads in mechanically mixing the beads and powder together.

52. A process comprising:

topically applying a finely divided powder to a plurality of polymer beads, the finely divided powder comprising brominated compounds including a carbon chain having at least one bromine substituent, and having at least one aromatic group substituent.